

Title (en)  
Apparatus and method for manufacturing tempered glass

Title (de)  
Vorrichtung und Verfahren zur Herstellung von gehärtetem Glas

Title (fr)  
Appareil et procédé de fabrication de verre trempé

Publication  
**EP 2471758 A1 20120704 (EN)**

Application  
**EP 11195879 A 20111228**

Priority  
KR 20100139258 A 20101230

Abstract (en)  
An apparatus for manufacturing tempered glass. A transportation unit transports a glass substrate that is intended to be tempered. An ionizer ionizes alkali oxides in the glass substrate by radiating energy onto the glass substrate. A dielectric heating unit increases the temperature of the inner portion of the glass substrate in which the alkali oxides are ionized by the ionizer.

IPC 8 full level  
**C03B 27/044** (2006.01); **C03B 27/04** (2006.01); **C03B 29/08** (2006.01); **C03B 29/12** (2006.01); **C03B 35/24** (2006.01); **C03C 23/00** (2006.01)

CPC (source: EP US)  
**C03B 27/0413** (2013.01 - EP US); **C03B 27/044** (2013.01 - EP US); **C03B 29/08** (2013.01 - EP US); **C03B 29/12** (2013.01 - EP US);  
**C03B 35/24** (2013.01 - EP US); **C03C 23/0005** (2013.01 - EP US); **Y02P 40/57** (2015.11 - EP US)

Citation (search report)  

- [I] US 5827345 A 19981027 - BOAZ PREMAKARAN TUCKER [US], et al
- [A] FR 2507296 A1 19821210 - CLADI MARCEL [FR]
- [A] "Ionizing radiation", 24 December 2010 (2010-12-24), XP007920490, Retrieved from the Internet <URL:<http://en.wikipedia.org/w/index.php?oldid=404069856>> [retrieved on 20120411]
- [A] THOMAS W. DAKIN, R. W. AUXIER: "Dielectric Heating", INDUSTRIAL & ENGINEERING CHEMISTRY, vol. 37, no. 3, 1945, pages 268 - 275, XP008150714, DOI: 10.1021/ie50423a019
- [A] E.M. YOSHIMURA, E. OKUNO, M. SUSZYNSKA: "Gamma irradiated soda lime silicate glasses of different origin: Isothermal light emission", NUCLEAR INSTRUMENTS AND METHODS IN PHYSICS RESEARCH SECTION B: BEAM INTERACTIONS WITH MATERIALS AND ATOMS, vol. 191, no. 1-4, May 2002 (2002-05-01), pages 375 - 378, XP004358441, DOI: 10.1016/S0168-583X(02)00542-6
- [A] PAUL W. LEVY: "The Kinetics of Gamma-Ray Induced Coloring of Glass", JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol. 43, no. 8, August 1960 (1960-08-01), pages 389 - 395, XP008150701, DOI: 10.1111/j.1151-2916.1960.tb13680.x
- [A] D. L. GRISCOM, E. J. FRIEBELE: "Effects of ionizing radiation on amorphous insulators", RADIATION EFFECTS, vol. 65, no. 1-4, 1982, pages 63 - 72, XP008150691, DOI: 10.1080/00337578208216818

Designated contracting state (EPC)  
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Designated extension state (EPC)  
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